REMARKS

Re-examination and allowance of the above-captioned application is respectfully requested.

Initially, Applicants thank the Examiner for indicating his consideration of the materials cited in the Information Disclosure Statement filed on July 21, 2006, as indicated by the completed PTO-1449 Form that accompanied the Office Action.

Applicants respectfully traverse the Examiner's 35 U.S.C. §103(a) rejection of the pending claims as being obvious over U.S. Patent 5,727,122 to HOSODA et al. in view of U.S. Patent 5,752,223 to AOYAGI et al. In setting forth this rejection, the Examiner asserts that HOSODA et al. fails to disclose that the waveform is fixed in nature, but argues that this feature is found in AOYAGI et al. Applicants respectfully submit that the Examiner is mistaken, and misunderstands the gist of the present invention, which relates to "a waveform provider configured to provide a fixed waveform from a memory", as recited in the pending claims.

For the convenience of the Examiner, Applicants submit herewith three drawings, labeled Fig. (A), Fig. (B), and Fig. (C), to assist the Examiner in understanding the present invention, based upon the below-provided discussion. Fig. (A) corresponds to Fig. 1 of AOYAGI et al., but is annotated to explain the present invention. Figs. (B) and (C) correspond to annotated versions of Figs. 18 and 21 of the present application.

Applicants submit that the waveform provider of the presently claimed invention is not a codebook, but rather, is another memory that provides a fixed waveform to modify an input excitation vector.

Based upon a review of the description of the thirteenth mode of the present invention (see page 92 of Applicants' specification), Applicants submit that the structural blocks of Fig. 21 of the instant invention correspond to the dashed line of Fig. 1 of AOYAGI et al. (see attached explanation drawing labeled "Fig. (A)"). Applicants further submit that index signal (a) of the fixed waveform arranging section 182, shown in Fig. 21 of Applicants' drawings (see explanation drawing labeled "Fig. (B)"), corresponds to index signal (a) of Fig. 1 of AOYAGI et al.

As discussed at page 92, lines 12 through page 94, line 9 of Applicants' specification, Fig. 21 presents a structural block diagram of a CELP type speech coder that has two kinds of random codebooks; random codebook A (denoted by element number 211) and random codebook B (denoted by element number 212). Switch 213 switches between the two kinds of random codebooks. Multiplier 214 multiplies a random code vector by a predetermined gain, while synthesis filter 215 synthesizes a random code vector output from the random codebook that is connected, via switch 213, and a distortion calculator 216 that computes coding distortion in accordance with equation 2.

The distortion calculator 216 performs minimization of the coding distortion in equation 2 using random codebook searching target x and the synthesized code vector obtained from the synthesis filter 215.

After the distortion is computed, the distortion calculator 216 sends a signal to the fixed waveform arranging section 182. The process from the selection of start position candidates by the fixed waveform arranging section 182 to the distortion computation by

the distortion calculator 216 is repeated for every combination of the start position candidates selectable by the fixed waveform arranging section 182.

The combination of the start position candidates that minimizes the coding distortion is selected, and the code number which corresponds, one to one, to the combination of the start position candidates, the then optimal random code vector gain and the minimum coding distortion value are memorized.

Further, based upon a review of the description provided with respect to the tenth mode, set forth at pages 76-78 of Applicants' specification, the index signal (a) inputted from the distortion calculator 216 to the fixed waveform arranging section 182 is the start position candidate information for fixed waveforms shown in TABLE 8 (see page 77 of Applicants' specification). TABLE 8 shows that each vector P1, P2, and P3 has a plurality of candidate positions and polarity. One candidate of the vector P1, P2 or P3 is selected and output according to the index signal (a).

Fig. 18 of Applicants' drawings (see explanation drawing labeled "Fig. (C)") illustrate the structural blocks of an excitation vector generator according to the tenth mode. The excitation vector generator has a fixed waveform storage section 181 that stores three fixed waveforms v1 (having length L1), v2 (having length L2), and v3 (having length L3) of channels CH1, CH2, and CH3, and a fixed waveform arranging section 182 that arranges the fixed waveforms v1, v2, and v3, read from the fixed waveform storage section 181, respectively, at positions P1, P2, and P3. An adding section 183 adds the fixed waveforms arranged by the fixed waveform arranging section 182, to generate an excitation vector.

The three fixed waveforms v1, v2, and v3 are stored in advance in the fixed waveform storage section 181. The fixed waveform arranging section 182 shifts the read fixed waveform v1 at position P1 selected from the start position candidates for CH1, based upon start position candidate information for fixed waveforms, as shown in TABLE 8, and likewise arranges the fixed waveforms v2 and v3 candidates at the respective positions P2 and P3 selected from start position candidates for CH2 and CH3.

Applicants further note that code numbers corresponding, one to one, to combination information of selectable start position candidates of the individual fixed waveforms (e.g., information representing positions selected as P1, P2, and P3, respectively) are assigned to the start position candidate information of the fixed waveforms of the fixed waveform arranging section 182.

Excitation information is transmitted by transmitting code numbers correlating to the start position candidate information of the fixed waveforms. The code numbers exist by the number of products of the individual start position candidates, so that an excitation vector close to an actual speech is generated. Since the excitation information is transmitted by transmitting code numbers, the excitation vector generator can be used as a random codebook in a speech coder/decoder (see, inter alia, page 78, lines 16-18 of Applicants' specification).

In view of the above discussion, which is set forth in Applicants' specification, Applicants submit that one skilled in the art recognizes that the index signal (a) of Fig. 21 of the present invention corresponds to the stochastic index (Is) or the pulse index (Ip) of AOYAGI et al., to select one waveform out of the stochastic codebook 106 or the pulse

codebook 107, and that vectors P1, P2, and P3 of Fig. 21 of the instant application correspond to the stochastic excitation signal (es) or the impulse excitation signal (ep) of AOYAGI et al.

An input excitation vector positioning to vectors P1, P2, and P3 is provided to a convolutor, and a fixed waveform is provided to the convolutor. The convolutor convolutes the excitation vector and the fixed waveform to generate a modified excitation vector.

In view of the above, Applicants submit that the "waveform provider configured to provide a fixed waveform from a memory" of the present invention is completely different from AOYAGI et al. In this regard, Applicants submit that based upon column 5, lines 6-17 and column 6, lines 47-64 of AOYAGI et al., AOYAGI et al. does not include a fixed waveform provider, but instead, performs a complicated filtering operation using conversion filter 109 that employs coefficients derived from an adaptive index (Ia) and dequantized linear predictive coefficients (aq).

In view of the above, Applicants submit that even if one were to attempt to combine the teachings of HOSODA et al. and AOYAGI et al. in the manner suggested by the Examiner, one would fail to arrive at the presently claimed invention, as such a combination would lack Applicants' claimed waveform provider that is configured to provide a fixed waveform from a memory. Accordingly, Applicants submit that the ground for the 35 U.S.C. §103 rejection of the pending claims no longer exist. Thus, the Examiner is respectfully requested to withdraw the 35 U.S.C. §103 rejection.

Applicants also respectfully traverse the Examiner's non-statutory double patenting rejection of claims 21, 22, 24, 25, 25, 28 and 29 over claims 1, 3-5, 7, 18, 19 and 21 of U.S. Patent 6,330,535; claims 21, 22, 24, 25, 28 and 29 over claims 1, 4, 6, 7, 18, 19 and 21 of U.S. Patent 6,947,889; and claims 21-30 over the claims of U.S. Patent 6,421,639 in view of U.S. Patent 5,727,122 to HOSODA et al.

Applicants submit that claims 1, 3-5, 7, 18, 19 and 21 of U.S. Patent 6,330,535 fail to include the "waveform provider configured to provide a fixed waveform from a memory", as required by pending claims 21, 22, 24, 25, 25, 28 and 29. In this regard, claims 1 and 21 of U.S. Patent 6,330,535 recite storing a fixed waveform, but not providing a fixed waveform from a memory, as recited in the pending claims. Thus, Applicants submit that the pending claims are not similar in scope to the claims of U.S. Patent 6,330,535, and respectfully request withdrawal of this ground of rejection.

Applicants submit that claims 1, 4, 6, 7, 18, 19 and 21 of U.S. Patent 6,947,889 also fail to include the "waveform provider configured to provide a fixed waveform from a memory", as required by pending claims 21, 22, 24, 25, 28 and 29. In this regard, claims 1 and 20 of U.S. Patent 6,947,889 recite storing a fixed waveform, but not providing a fixed waveform from a memory, as recited in the pending claims. Thus, Applicants submit that the pending claims are also not similar in scope to the claims U.S. Patent 6,947,889, and respectfully request withdrawal of this ground of rejection.

Similarly, Applicants submit that the claims of U.S. Patent 6,421,639 fail to include the "waveform provider configured to provide a fixed waveform from a memory", as required by the pending claims, and that this feature is not taught by

HOSODA et al. (which the Examiner acknowledged with respect to the 35 U.S.C. §103 rejection, discussed above). In this regard, the claims of U.S. Patent 6,421,639 recite storing a fixed waveform, but not providing a fixed waveform from a memory, as recited in the pending claims. Thus, Applicants submit that the pending claims are not similar in scope to the combination of the '639 patent and HOSODA et al., and respectfully request withdrawal of this ground of rejection.

SUMMARY AND CONCLUSION

In view of the above, Applicants submit that none of the art of record, whether considered alone or in combination, discloses or suggests the present invention as defined by the pending claims. In view of the above remarks, reconsideration of the Examiner's action and allowance of the present application is respectfully requested.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

If there should be any questions concerning this application, the Examiner is requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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Enclosures:
Figs. (A), (B), and (C) for purposes of explanation